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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/046,183

01/16/2002

Masahiro Uchida

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11/20/2003

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EXAMINER

LEFLORE, LAUREL E

ART UNIT

PAPER NUMBER

2673

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/046,183

Applicant(s)

UCHIDA ET AL.

Examiner

Laurel E LeFlore

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. Receipt of the substitute specification and abstract and preliminary amendment of the claims filed 10 April 2002 is acknowledge. The substitute specification and abstract and amended claims have been entered.
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The following title is suggested: Electronic Apparatus Provided with Organic Electroluminescent and Liquid Crystal Devices.
4. The disclosure is objected to because of the following informalities: In paragraph [0007], line 4, "consumption, are" should be "consumption, that are". In paragraph [0025], line 2, "of liquid" should be "of the liquid". In paragraph [0030], line 3, "remaining changes" should be "remaining charge". In paragraph [0039], line 2, "cadmium (Ca)" should be "cadmium (Cd)". In paragraph [0055], line 8, "such converting" should be "such as converting".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. 6,069,593 in view of Komiya et al. 6,501,448 B1.

In regard to claim 1, Lebby et al. discloses an electronic apparatus that includes a device to display, comprising: an organic electroluminescent device that displays (see figures 1 and 2, element 28) and a liquid crystal device that displays (see figures 1 and 2, element 26). See column 3, lines 39-42, disclosing that "large direct view display 26 is a non-emissive liquid crystal display (LCD) and small direct view display 28 is an emissive display such as one utilizing organic electroluminescent technology." Lebby et al. does not disclose that the organic electroluminescent elements have an anode, a cathode, and at least one organic light emitting layer interposed between the anode and the cathode.

Komiya et al. discloses an organic electroluminescent element (see figure 4) having an anode (element 61), a cathode (element 66), and at least one organic light emitting layer (element 65) interposed between the anode and the cathode. See column 4, lines 31-35, discloses "the organic element 60 comprises the anode 61..., a cathode 66..., and an emissive element film 65 interposed between the anode 61 and the cathode 66."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby et al. according to the invention of Komiya et al. by having an anode, cathode and light emitting layer between the anode and cathode in the organic electroluminescent device, as is common in organic electroluminescent technology. One would have been

motivated to make such a change based on the teaching of Lebby to use an emissive display such as one utilizing organic electroluminescent technology.

In regard to claim 2, Lebby et al. discloses that the electronic apparatus is a mobile terminal. See figure 1, element 10 and column 2, line 33, disclosing "a portable electronic device".

In regard to claim 12, see column 4, lines 4-11, referring to figure 2, which states that "When power is being supplied to portable electronic device through battery power source 12, only one display, either 24, 26 or 28 is capable of being "ON". In this instance, the user would have control of which one display is "ON", more particularly preferred viewing operation, through function buttons 30. This ability for the electronic control of displays 24, 26 and 28 enables lower power drain on battery source 12. " Thus, a device that switches display between the liquid crystal device and the organic electroluminescent device is provided with the function buttons 30.

7. Claims 4, 7 and 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. 6,069,593 in view of Komiya et al. 6,501,448 B1 as applied to claim 1 above, and further in view of Kimura et al. 2001/0035849 A1.

Lebby in view of Komiya discloses an invention similar to that which is claimed in claims 4, 7 and 8. See rejection of claim 1 for similarities. Lebby in view of Komiya differs from the claimed invention in that it does not specify which driving method is to be used for the 2 displays.

Kimura et al. teaches in paragraph [0005] that "Similar to LCDs that have roughly two types of driving methods with one being passive matrix type...and the other being active matrix type...EL displays also are driven by roughly two types of driving methods. One is passive matrix type and the other is active matrix type." It is understood that a passive matrix driving method is a "simple" matrix driving method.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Komiya according to the teaching of Kimura to use either an active or passive (simple) matrix driving method for an EL or LCD display. One would have been motivated to make such a change in order to use one of two known types of driving methods, active or passive (simple), for LCD and EL displays.

8. Claims 5, 6 and 9-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. 6,069,593 in view of Komiya et al. 6,501,448 B1 as applied to claim 1 above, and further in view of Oshitani et al. 2002/005824 A1.

In regard to claim 6, Lebby in view of Komiya discloses an invention similar to that which is claimed in claim 6. See rejection of claim 1 for similarities. Lebby in view of Komiya does not disclose that the liquid crystal device is reflective.

Oshitani et al. teaches in paragraph [0005] that "a reflection type liquid crystal element is equipped with a front light rather than the back light. The front light illuminates the display element from its front, which results in an

improvement of a viewing ability of the liquid crystal element in a dark place.”

Use of a reflection type liquid crystal device is further demonstrated in figures 1B and 1C, in which, according to paragraph [0050], the display panel 6 is preferably a reflection type liquid crystal element.

It would have been obvious to one of ordinary skill in the art at the time to modify the invention of Lebby in view of Komiya by using a reflective liquid crystal device, as described in the teaching of Oshitani. One would have been motivated to make such a change in order to improve viewing ability of the liquid crystal device in a dark place. Further, this is a conventional type of LCD as indicated in Oshitani.

9. In regard to claim 5, Lebby in view of Komiya discloses an invention similar to that which is claimed in claim 5. See rejection of claim 1 for similarities. Lebby in view of Komiya does not disclose that the liquid crystal device is transflective.

Oshitani et al. discloses a transflective liquid crystal device. In paragraphs [0079]-[0082] and in reference to figure 12, Oshitani et al. discloses in paragraph [0079] that the “display panel 103 has a liquid crystal panel 110.” Then in paragraphs [0080]-[0081], “The liquid crystal element includes three color display layers 112...Each display layer 112 includes top and bottom substrates, 113 and 114, both made of transparent material...and a liquid crystal 116 filled between the substrates”. Paragraph [0082] discloses that “used for the liquid crystal 116 in each of the display layers is a cholesteric liquid crystal capable of selectively reflecting a part of visible light.” In this way, Oshitani discloses a liquid crystal

device that is both translucent and reflective, or a transfective liquid crystal device.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Komiya by using a liquid crystal device that is transfective, as in the invention of Oshitani. One would have been motivated to make such a change in order to have a liquid crystal device that is both reflective and translucent, such that various images can be read even in a dark place (see Oshitani, paragraph [0088]).

10. In regard to claims 9 and 10, Lebby in view of Komiya discloses an invention similar to that which is claimed in claim 10. See rejection of claim 1 for similarities. Lebby in view of Komiya does not disclose that the liquid crystal device is a color display or monochrome display.

Oshitani et al. discloses a liquid crystal device that can be a color display or monochrome display. Referring to figure 12, see paragraph [0080], stating "The liquid crystal element 110 includes three color display layers 112, i.e., red display layer 112R, green display layer 112G, and blue display layer 112B". Also see paragraph [0082] disclosing that "the display layer 112B, 112G, and 112R employ liquid crystals that selectively reflect blue, green, and red light, respectively." Thus, the display can be color. In paragraph [0083], Oshitani et al. discloses that the display can also be monochrome. Paragraph [0083] states that "In response to a voltage applied between the upper and lower electrodes 117 and 118 opposing through the liquid crystal 116, the display layer 112

changes between a transmission state where the liquid crystal allows light to pass therethrough and a reflection state where the liquid crystal reflects the associated light...When...all of the display layers are set to be transparent state, light is all absorbed by the light absorbing layer 111 so that no color except black is displayed.”

It would have been obvious to one of ordinary skill in the art at the time to modify the invention of Lebby in view of Komiya by using the specific properties of the liquid crystal display in the invention of Oshitani. One would have been motivated to make such a change in order to provide a liquid crystal display that is monochrome or in color as appropriate for the specific use of the display.

11. In regard to claim 11, Lebby in view of Komiya discloses an invention similar to that which is claimed in claim 11. See rejection of claim 1 for similarities. Lebby in view of Komiya does not disclose that the organic electroluminescent device is used as a light source for the liquid crystal device.

Oshitani et al. discloses a liquid crystal device that is illuminated by an electroluminescent device. See paragraph [0050], referring to figures 1B and 1C, disclosing that the display panel 6 is preferably made up of liquid crystal elements. Also see paragraph [0057] (and figure 1B), disclosing that “the display panel 6 is illuminated by the organic electroluminescent light source 4”.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Komiya by using the organic electroluminescent device as a light source for the liquid crystal

device, as in the invention of Oshitani. One would have been motivated to make such a change in order to provide illumination to a liquid crystal display that is non-light-emitting (see Oshitani, paragraph [0050]).

12. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. 6,069,593 in view of Komiya et al. 6,501,448 B1 as applied to claim 1 above, and further in view of Biferno 4,568,928.

13. In regard to claim 13, Lebby in view of Komiya discloses an invention similar to that which is claimed in claim 13. See rejection of claim 1 for similarities. See Lebby, column 2, lines 33-34, disclosing a battery is provided in the portable electronic device. Lebby in view of Komiya does not disclose a device that suspends display by the organic electroluminescent device and that switches automatically display by the liquid crystal device, when a remaining charge of the battery becomes a predetermined remaining charge.

Biferno et al. discloses a display system which includes an electroluminescent display (see column 1, lines 58-61) and a backup display (see column 2, lines 5-8). See column 4, lines 1-8, disclosing that the backup display may be a liquid crystal display. According to the invention, the backup display "becomes visible to the viewer when the electro-luminescent display...is not energized." Thus, there is a device that switches display from the electroluminescent device to the liquid crystal device based on the remaining energy in the electroluminescent device.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Komiya by having the display switch from the electroluminescent device to the liquid crystal device according to the energy level of the electroluminescent device, as in the invention of Biferno, with the energy being supplied by the battery of Lebby's invention. In this manner, display by the organic electroluminescent device would switch automatically to display by the liquid crystal device, when a remaining charge of the battery becomes a predetermined remaining charge. One would have been motivated to make such a change in order to provide a display to the viewer when the electroluminescent display is not energized.

14. Claims 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebby et al. 6,069,593 in view of Komiya et al. 6,501,448 B1 as applied to claim 1 above, and further in view of Shiraishi et al. 5,144,292, and further in view of Yamashita et al. 2000-105573.

In regard to claims 3 and 14, Lebby in view of Komiya discloses an invention similar to that which is claimed in claim 13. See rejection of claim 1 for similarities. Lebby in view of Komiya does not disclose that the electronic apparatus, when not manipulated for a predetermined period or during stand-by, the organic electroluminescent device being in a non-display mode, and only the liquid crystal device being in a display mode.

Shiraishi et al. discloses a liquid crystal display device (see figure 4, element 16) that has an electroluminescent backlight panel (element 24). See also from

figure 4 that the electroluminescent panel is continuously driven. Shiraishi discloses in column 2, lines 36-38, that "a timer 13, which counts a predetermined period of time, serves to turn off the electroluminescent panel light 24". In this way, a timer is used to turn off the organic electroluminescent device after a predetermined period of time. Thus, after a predetermined period of time, the organic electroluminescent device is in a non-display mode, and only the liquid crystal device is in a display mode.

Shiraishi does not, however, disclose that the predetermined period of time corresponds to a period of time in which the device is not manipulated or during standby. Yamashita et al. discloses an organic electroluminescent display in which only the minimal necessary information is displayed during standby.

It would have obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Lebby in view of Komiya by switching off the EL display after a predetermined time period, leaving only display by the LCD, as in the invention of Shiraishi, and further to have the predetermined period of time correspond to a standby time period, as in the invention of Yamashita. One would have been motivated to make such a change in order to have low power consumption (see Yamashita abstract), since an electroluminescent display consumes more power than a liquid crystal display.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laurel E LeFlore whose telephone number is (703) 305-8627. The examiner can normally be reached on Monday-Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

LEL



JOSEPH MANCUSO
PRIMARY EXAMINER